

Updated as of September 15, 2011

Exhibit 8

Apportionment Assessment of Patent '720 Copy-on-Write Process cloning

Patent Functionality

- The '720 patent provides more efficient memory usage "because a master runtime process having preloaded classes is cloned to provide subsequent runtime processes that share the preloaded classes rather than have separately loaded classes. If the cloned runtime process needs to modify shared memory space, the copy-on-write mechanism causes the shared memory space to be copied at that point. Any loading of non-shared classes by the subsequent processes is deferred until necessary."

[1]

Contemporaneous Evidence

- "We are building an embedded system. It is *massively* slower and has *massively* less memory than a modern desktop or server computer. . . . We already use too much memory and execute too much code. Embedded is all about doing more with less. If it is not approached that way, you get terrible, slow, unusable systems. It's not pretty. Every cycle of work you do is further reduction of battery life. . . . Smaller, simpler, faster, more reliable wins."

[2]

Benchmarking Evidence

- Performance test completed by Oracle engineer Erez Landau shows 40% RAM savings (Android uses 51MB instead of 86MB) with average savings of 2 MB per application.
- Disabling the '720 patent increased camera application launch time by 1.7 seconds.
- Disabling the '720 patent increased email application launch time by 1.66 seconds.

[3]

[4]

[5]

Econometric Analysis

- Willingness to pay analysis provides evidence that consumers value device RAM. The '720 patent enables a reduction in RAM usage, increasing the amount of RAM available to the end user while holding physical RAM constant.
- Consumers are more likely to purchase handsets with more RAM available.
- Analysis suggests patent apportionment of approximately 10%.

[6]

[7]

[8]

Hardware Cost Calculation

- Patent impact of 35 MB of RAM lost per device, RAM cost of approximately \$.03 per 1 MB, and 2008-2011 Android unit sales of 70 million suggests hardware cost savings of \$73.7 million (~11% of pre-apportioned damages).

[9]

Conjoint Analysis

- Analysis suggests that consumers value faster phones.
- Analysis suggests that consumers value phones that can multitask more effectively.
- Analysis suggests patent apportionment of approximately 17.1%.

[10]

[11]

[12]

Opinion

- 10% apportionment
- Estimated patent damages after U.S. adjustment: \$67.3 million

Exhibit 8 (continued)
Apportionment Assessment of Patent '720
Copy-on-Write Process cloning

Sources:

- [1] Mitchell Patent Report, p. 279.
- [2] GOOGLE-01-00082292 (8/9/2007 e-mail from Brian Swetland to Andy Rubin, Steve Horowitz, and Hiroshi Lockheimer).
- [3] Landau Report, ¶ 37–38.
- [4] Exhibit 4
- [5] Exhibit 4
- [6] See Appendix C.
- [7] See Appendix C.
- [8] See Appendix C.
- [9] Summary and Report of Erez Landau, August 8, 2011, p. 7.
- [10] See Shugan report.
- [11] See Shugan report.
- [12] Exhibit 4